Richardの思い出 (流体力学におけるRich Pelzの貢献)

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CITATION:

木田, 重雄. Richardの思い出 (流体力学におけるRich Pelzの貢献). 数理解析研究所講究録 2003, 1326: 27-31

ISSUE DATE:

2003-05

URL:

http://hdl.handle.net/2433/43209

数理解析研究所講究録 1326 巻 2003 年 27-31

Richard の思い出

木田重雄
(核融合研)

Richard との接点

プリンストン大学

高対称流

FDR

プリンストン大学

- 1982: MA, Mechanical & Aerospace Engineering
- 1983: PhD　Prof. S.A. Orszag
- 1984 – 1986: Research Associate & Lecturer

- 1988-1989: 招聘研究員 （Prof. S.A. Orszag）

High-Symmetric Flow

JPSJ 1985

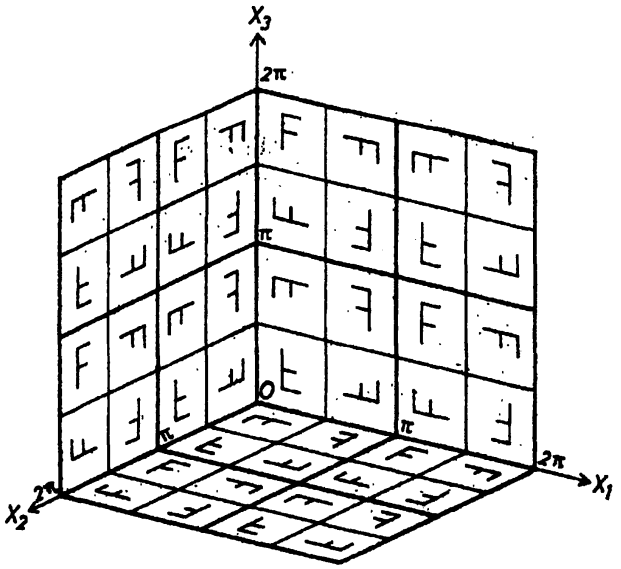


Fig. 1. Structure of high-symmetry. A periodicity box ($0 \leqq x_1, x_2, x_3 \leqq 2\pi$) is composed of 8 impermeable boxes of various orientations, the edges of which are drawn by thick lines. There are two types of impermeable boxes, which are mirror images of each other. Each impermeable box is composed of 8 fundamental boxes. Letter F represents the state on a face of the fundamental box. The back-faced letter of F denotes the mirror image. The flow is anti-symmetric with respect to plane $x_1=\pi$, $x_2=\pi$ or $x_3=\pi$. In an impermeable box it is invariant under rotations of angle $\pi/2$ around three centre-lines of the box. In a fundamental box it is invariant under a rotation of angle $2\pi/3$ around a diagonal of the box.

High-Symmetry Flow

Full Octahedral Flow

Direct numerical simulation of transition to turbulence from a high-symmetry initial condition
Olus N. Boratav and Richard B. Pelz
The Physics of Fluids.6 no.8 (1994), pp. 2757-2784.

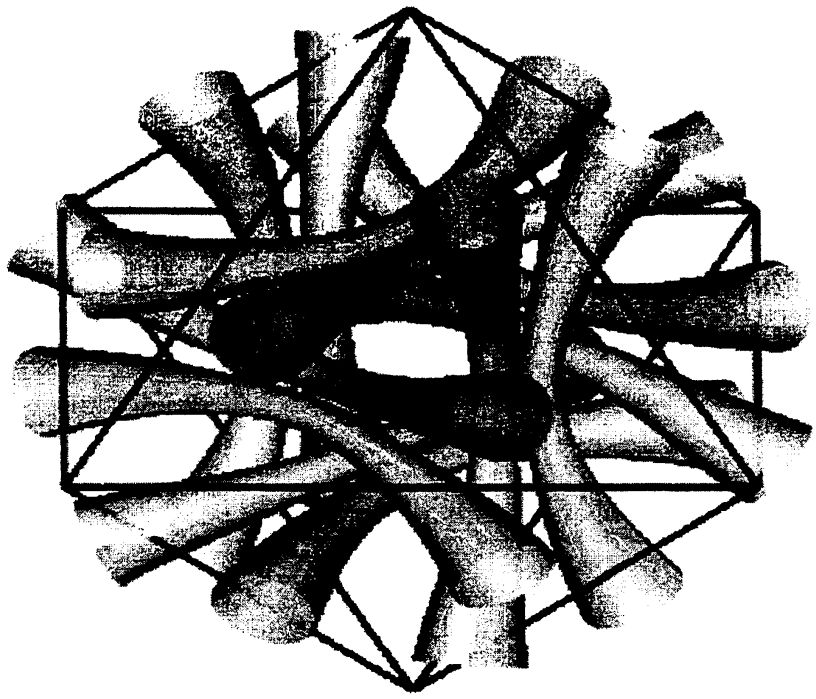
Locally Isotropic Pressure Hessian in a High-Symmetry Flow
Boratav, O.N. and Pelz, R.B.
The Physics of Fluids Vol 7, No 5, (1995) pp. 895-897.

On the Local Topology Evolution of a High-Symmetry Flow
Boratav, O.N. and Pelz, R.B.
The Physics of Fluids Vol 7, No 7, (1995) pp. 1712-1731

Locally self-similar, finite-time collapse in a high-symmetry vortex filament model
R. B. Pelz
Physical Review E, 55 1997, 1617.

Evidence for a Real-Time Singularity in Hydrodynamics from Time Series Analysis
R. B. Pelz and Y. Gulak
Physical Review Letters, Vol. 79, No. 25 (1997), pp 4998-5001.

Full Octahedral Flow



Fluid Dynamics Research

編集委員: アメリカ地区担当 (1995～)

編集委員長 (2002～)

Richards' Memorial Issue of FDR

2002/8 比叡山

Date: Thu, 19 Sep 2002 12:06:33 -0400 (EDT)

From: "Richard B. Pelz" <pelz@jove.rutgers.edu>

To: "Francissen, Diddel (ELS)" <D.Francissen@elsevier.com>

cc: "'Shigeo Kida'" <kida@toki.theory.nifs.ac.jp>

Subject: RE: FDR (animation)

Dear Ms. Fransissen and Shigeo,

I believe my email of Sept 16 to Shigeo contains all replies to questions, perhaps it was overlooked... I shall summarize.

Animation: I am in favor of it. I have questions about the format and extent of text which would accompany a publication, however.

Meeting: I shall certainly be able to travel to the NY area for a meeting in December. November is still questionable due to heart surgery Sept 24.

Regards,

-r

Date: Thu, 19 Sep 2002 20:48:27 -0400 (EDT)
From: "Richard B. Pelz" <pelz@jove.rutgers.edu>
To: Shigeo Kida <kida@toki.theory.nifs.ac.jp>
Subject: RE: FDR (animation)

Dear Shigeo,
I'll resend my Sept 16 email...
About the meeting with Diddle, I would suggest that I meet her in person and we both can have a conversation with you on the phone at that time. Lets she if she would agree with that.
Concerning the FDR biofluiddynamcis issue, the candidates that you have contacted are great. Since I am currently deeply interested in the fluid dynamics of the heart, I was going to ask my surgeon whether he could suggest a candidate who could write about fluid physics of the heart: important outstanding problems. What do you think?
Regards,-r